

1.0**WATERSHED PLANNING**

A watershed is an area of land that collects and drains water to a specific point. Similar to water poured into a bowl, a portion of the precipitation that falls on a watershed will move through the landscape, collecting and concentrating in low areas, creeks, and streams, until it exits through an outlet point. A watershed is a measurable and practical landscape feature that is based on how water moves, interacts with, and behaves on the landscape. Watershed planning is especially important to preserve watershed functions, help prevent future water resource problems and ensure future economic, political, and environmental health. This section provides information on the funding, purpose, and stakeholders involved in the development of the Lower Fall Creek Watershed Management Plan.

1.1 BACKGROUND

In the fall of 2006, the Marion County Soil and Water Conservation District (SWCD) submitted a Section 319 Non Point Source Program grant application to the Indiana Department of Environmental Management (IDEM) to develop a Watershed Management Plan (WMP) for the Lower Fall Creek Watershed. The grant application was approved, and the SWCD received a grant in March of 2007. The tasks, timeline, and checklist for this project are in **Appendix 1**. The SWCD retained the professional services of Christopher B. Burke Engineering, Ltd. (CBBEL) to serve as the Watershed Coordinator for the development of the WMP. CBBEL assisted in the development, coordination, and facilitation of stakeholder discussions, the collection and analysis of water quality data, and is the primary author of the WMP.

1.2 PURPOSE

The purpose of this WMP is to gain a greater understanding of the water quality impairments in the Lower Fall Creek Watershed and engage the diverse stakeholders to identify and implement sustainable and local solutions.

The Marion County SWCD believes that a WMP is a guiding document that examines the historical and existing water resource issues in a particular watershed and presents specific actions to address those water resource issues based on the values and needs of the community. The SWCD hopes that the successful completion of the Lower Fall Creek WMP will serve as a benchmark for all future urban watershed efforts in the State of Indiana. Fall Creek is a highly recognizable recreational and drinking water supply resource which traverses a varied landscape socially, economically, and geographically.

1.3 STAKEHOLDER INVOLVEMENT

A WMP represents the efforts of the stakeholders, including water resource professionals, local government leaders, and interested citizens, to understand, analyze, and become an integral part of the solution to improve impaired water quality. In recognition of the social, physical, and economic diversity present in the Lower Fall Creek Watershed, a Steering Committee, work groups, workshops, public meetings, and educational materials were used to engage stakeholders and develop the WMP.

Steering Committee

The Lower Fall Creek WMP Steering Committee was made up of individuals representing municipalities, counties, economic development organizations, neighborhood associations, universities, and environmental groups; and was the primary committee utilized to guide the overall direction of the WMP. The Steering Committee (**Figure 1-1**) met on a quarterly basis from May of 2007 through January of 2009. **Table 1-1** identifies the Steering Committee members. **Appendix 2** includes Steering Committee meeting agendas and summaries.



Figure 1-1: Steering Committee

Other individuals that served as Steering Committee members during the development of this WMP include Lori Kaplan while serving Director of the City of Lawrence DPW, Christ Blassaras formerly with the Madison County SWCD, Angie Dye while employed with Veolia Water, and Kelly Wood while serving as the Neighborhood Liaison for the City of Indianapolis.

Table 1-1: Steering Committee

Name	Representing
Chris Barnett	Near North Development Corporation
Robert Barr	IUPUI – CEES
Cindy Newkirk	Hancock County SWCD
Carl Clark	Indianapolis Mayor's Office
Victoria Cluck	Indianapolis DPW
Josh Goode	IACT
Tina Jones	Indy Parks
Joe King	Dirty Dozen Hunting & Fishing Club
Ron Lauster	Marion County SWCD
Bob Masbaum	Indianapolis DPW
Brad Newman	Madison County Surveyor's Office
Donna Price	Indianapolis DMD
John South	Hamilton County SWCD
Pam Thevenow	Marion County Health Department
Kenton Ward	Hamilton County Surveyor
Gwen White	IDNR – LARE Program
Paul Whitmore	Veolia Water
Jerry Wilkey	Lawrence MS4 Coordinator

In addition to guiding the development of the WMP, the Steering Committee discussed the larger issues of 1) land use and land use change, 2) source water protection, and 3) flooding in the Lower Fall Creek Watershed. A summary of these discussions are below, and a detailed discussion in Section 2.0 of this WMP.

The first topic of interest, Land Use and Land Use Change, was discussed at the February 12, 2008 Steering Committee meeting. Using US Census data and aerial photography, CBBEL staff

illustrated the dramatic growth and development that has occurred within the Lower Fall Creek Watershed in the last 50 years. Research on land use and development practices as sources of sediment, nutrients, and pathogens as well as the direct relationship between imperviousness and water quality was presented to the Steering Committee. To further illustrate this point the Land Use Central Indiana (LUCI) and the Long-Term Hydrologic Impact Analysis (L-THIA) were used in different growth scenarios. Members of the Steering Committee engaged in a fruitful discussion regarding the opportunities and challenges of land use planners and stormwater managers working together to develop watershed solutions to improve water quality.

The second topic of interest, the Relationship of Surface Water and Groundwater Quality, was discussed at the May 13, 2008 Steering Committee meeting. CBBEL staff presented research on the connectivity of groundwater and surface water, gaining and losing streams, and potential pollutant sources from land uses in Wellfield Protection Areas (WFPAs). Approximately 25% of the land in the Lower Fall Creek Watershed is within a WFPA. The Steering Committee discussed the implications of implementing stormwater quality management measures designed for sediment removal and filtration of pollutants in WFPAs. Chris Barnett with the Marion County Wellfield Education Corporation (MCWEC) also provided valuable insight to the potential impacts of contaminated groundwater as he serves on the Board for MCWEC.

The third topic of interest, Flooding and Flooding Impacts was discussed at the August 12, 2008 Steering Committee meeting. CBBEL staff provided an overview of notable historic flood events in the Lower Fall Creek Watershed and flood-related losses. Maintenance practices of regulated and non-regulated drains were discussed. Throughout the Lower Fall Creek Watershed, there are very good examples of floodplain management. These include: adopting compensatory storage/No Adverse Impact (NAI) language, participation in the Community Rating System (CRS), reactivating stream gages for flood warning, implementation of a Flood Preparedness/Response Plan, delineate floodplain on unstudied streams, implement 2-stage ditch design on regulated drains, and implementation of Low Impact Development (LID) techniques.

Work Groups

Three work groups were formed to focus on Public Education & Outreach, Land Use & Economic Development, and Water Quality in the Lower Fall Creek Watershed. Participation in the work groups was open to stakeholders with expertise or interest. The work groups met 3 to 4 times to assist with collecting and interpreting data; identify and prioritize Critical Areas; recommend programs, policies, and projects to improve water quality; and review and comment on the Lower Fall Creek WMP. Summaries from work group meetings are in Appendix 2. **Table 1-2, Table 1-3, and Table 1-4** lists the individuals invited to participate in each of the work groups. Not all the individuals listed were able to physically attend the meetings but were able to assist in the development of the Lower Fall Creek WMP via email, phone, or one-on-one meetings with the Marion County SWCD and CBBEL staff.

Table 1-2: Public Education & Outreach Work Group

Name	Representing
Lou Ann Baker	Veolia Water Company
Eric Becker	Lake Maxinhall
Cindy Newkirk	Hancock County SWCD
Bonnie Chastain	Windridge Development
Carl Clark	Indianapolis DMD - Neighborhoods
Dean Farr	Watershed Resident

Name	Representing
Tina Jones	Indy Parks
Joe King	Dirty Dozen Hunting and Fishing Club
Ron Lauster	Marion County SWCD
Mark McCauley	Hamilton County SWCD
Linda Prokopy	Purdue University
Mark Rumreich	Indian Lake HOA
Shaena Smith	Hamilton County SWCD
Karen Terrel	Indianapolis DMD - Neighborhoods
John Ulmer	Central Indiana Watershed Group
Gwen White	IDNR – LARE

Table 1-3: Land Use & Economic Development Work Group

Name	Representing
Chris Barnett	Near North Development Corporation
Tammy Bowman	Madison County Economic Development
Jerry Bridges	Madison County of Governments
Tom Crouch	Lawrence Economic Development
Kathy Davidson	Indianapolis Economic Development
Michael Hershman	Madison County Planning
Jennifer Janke	Fishers Development Department
Anna Jetmore-Vargas	Indianapolis DPW
Roger Johnson	Noblesville Planning Department
Kevin Kelly	Noblesville Economic Development
Chuck Kiphart	Hamilton County Plan Commission
Ron Lauster	Marion County SWCD
Dennis Malloy	Hancock County Economic Development
Mark Rumreich	Indian Lake
Dennis Slaughter	Indianapolis Planning Department
John South	Hamilton County SWCD
Gwen White	INDR – LARE
Christi Wolfe	Fishers Economic Development

Table 1-4: Water Quality Work Group

Name	Representing
Robert Barr	IUPUI – CEES
Fred Beyne	Mallard Lake Association
Dean Farr	Watershed Resident
Bill Guertal	USGS
Jim Hoskins	Indian Lake HOA
Joe Ketterman	Marion County Health Department
Ron Lauster	Marion County SWCD
Gary Rosenberg	Windridge Development
Andy Van Treese	Indian Lake HOA
Paul Werdertich	Indianapolis DPW
Gwen White	IDNR - LARE

Public Meetings

Public participation is essential to the long-term success of any watershed planning effort. Education and outreach efforts can effectively change the public's behaviors and attitudes toward water quality, improve local awareness of the relationship between land use and water quality, and demonstrate how day-to-day activities impact the quality of rivers and streams in the Lower Fall Creek Watershed.

Two Public Meetings were conducted (**Figure 1-2**). The purpose of the Public Meetings was to introduce Lower Fall Creek Watershed stakeholders to the planning process, solicit stakeholder participation in work groups, identify critical areas, recommend programs, policies, and projects to improve water quality, and build support for the long-term implementation of the Lower Fall Creek WMP.



Figure 1-2: Public Meeting

Both public meetings were advertised through a targeted direct mailing campaign to Neighborhood Associations in the Lower Fall Creek Watershed, and press releases were sent to local media outlets, the SWCD, and the Lower Fall Creek Watershed website. **Appendix 3** includes the materials distributed.

The first Public Meeting was held on July 24, 2007 at the City of Lawrence Government Center and was attended by 30 Lower Fall Creek Watershed stakeholders representing citizens, neighborhood groups, environmental groups, state and local government agencies. CBBEL staff provided an overview of the 319 grant program describing the need for a WMP, the

Steering Committee, and the anticipated outcomes of the planning effort. An open discussion regarding the current status of the entire watershed was facilitated by CBBEL staff. Comments from the audience were recorded, discussed, and were later provided to the Steering Committee for further comment and discussion. Information was disseminated, which described the 3 work groups (Education & Outreach, Land Use & Economic Development, and Water Quality) along with the dates and locations for the initial meetings of each work group. Opportunities for collaboration were also discussed and many attendees provided contact information and discussed the ability to include updates in neighborhood newsletters and websites.

The second Public Meeting was held on January 15, 2009 at the City of Lawrence Government Center. Approximately 25 Lower Fall Creek Watershed stakeholders were in attendance as highlights from the draft WMP were presented. Information included an overview of the planning process, the education and outreach efforts throughout the development of the WMP as well as the proposed management measures developed by the work groups and the Steering Committee. Representatives from the Indian Lake Watershed as well as Windridge Condominiums were present to discuss their recent actions (detailed in later sections) to protect and enhance water quality. Both groups were also very interested in the continuation of efforts within the Lower Fall Creek Watershed. A representative from Purdue University was also present to provide a summary of the next steps of the Social Indicator Survey completed within the watershed. Due to a low response rate, a series of small focus groups will be held to obtain better insight and similar information as was sought with the mailed survey.

Workshops

While it is critical to engage citizens and stakeholders as a component of developing a WMP, it is equally as important to provide stakeholders with educational opportunities that extend beyond the conceptual boundaries of watershed planning. In recognition of this concept, 3 workshops were conducted. Each of these workshops was designed to target specific stakeholders in urban, suburban, or rural communities in the Lower Fall Creek Watershed. Brochures were prepared and distributed to advertise each workshop (Appendix 3).

The first workshop focused on assisting suburban lake and stream shoreline residents to develop a Management Plan for their property to reduce water quality impacts (**Figure 1-3**). This workshop was held in two sessions, the first on June 12, 2008 and the second on August 21, 2008. Both sessions were held at the Garrison at the Fort Benjamin Harrison State Park.

The first session, with approximately 30 people in attendance, featured presentations from Mark Mongin, SePro Corporation and Heather Buck, CBBEL. Mark's presentation provided the background information on what a watershed is, the importance of working on a watershed level, and examples of projects that representative lake communities in Indiana have completed to protect their shoreline, their homes, and the quality of their lake or pond.



Figure 1-3: Shoreline Stewards Workshop

A representative case study of a shoreline assessment was presented to the participants indicating important information that their assessments should include. During the assessment discussion, participants were able to ask questions and provide information related to their specific location and situation. The evening ended with final guidance on completing the blank assessment sheets for each participant. It is expected that during the August session, the individual assessments will be reviewed, and any further questions will be addressed.

The focus of the second session of the Shoreline Stewards workshop was several topic related round table discussions. Approximately 10 participants returned with draft shoreline management plans in hand and several questions for the round table discussions. Topics and discussion leaders for this portion of the workshop included:

- Plant pests and invasive species – Mark Mongin, SePro Corp.
- Nutrient Management and Water Quality Concerns – Matt Johnson, Aquatic Control, Inc
- Nuisance animal control – Shannon Winks, IDNR
- Shoreline and streambank stabilization – Matthew Kerkhof, Hoosier Aquatic Management and Simon Davies, JF NEW
- Backyard conservation and naturescaping techniques – Shaena Smith, Hamilton County SWCD and Ben Reinhart, Indiana Wildlife Federation
- Resources and information for land management – Glenn Lange, Marion County SWCD
- Resources and information for lake and stream management – Angela Sturdevant, Indiana Lake Management Society

Participants were encouraged to visit each topic table to address specific questions related to their shoreline, or to learn more about each of the topics.

The second Workshop focused on establishing backyard conservation practices at existing residential, commercial, and institutional properties in the urbanized portions of the watershed (**Figure 1-4**). With the focus of assisting urban watershed residents utilize their own backyards to make a difference in the water quality of Lower Fall Creek, a Backyard Conservation workshop was held on November 12, 2008 at the Broadway United Methodist Church. Jackie Nytes, Executive Director of the Mapleton Fall Creek Community Development Corporation, welcomed nearly 30 people to the evening's workshop. Following the welcome, Ron Lauster, Marion County SWCD, discussed the basics of a rain barrel and the benefits of rain barrels to homeowners and Lower Fall Creek. With a brief overview of rain barrel construction, groups of 5 participants joined together to design and construct a functioning rain barrel that was awarded to one of the group members at the end of the workshop.



Figure 1-4: Backyard Conservation Workshop

After construction of the rain barrels, Michele Conyer of Indy Parks, Environmental Education, provided participants with tips for attracting wildlife to their backyards while also deterring unwanted species. Ben Reinhart of the Indiana Wildlife Federation described the certification process by which homeowners can have their backyards declared a Backyard Wildlife Habitat. Brooke Klejnot of the Mapleton Fall Creek Community Development Corporation and Danielle Fluhr of Eden in Indianapolis also helped to coordinate the evening's events. Several local businesses assisted with the success of the workshop through donations of refreshments and additional supplies for the installation of the rain barrels. At the conclusion of the workshop, participants were given all the necessary supplies and a barrel to construct their own rain barrels.

The third Workshop focused on the rural issues pertaining to regulated and non-regulated drains, buffers for water quality, and maintenance procedures (**Figure 1-5**). The "Regulated Drains and Natural Waterways" workshop was held at the Lapel Public Library in Lapel, Indiana. Presentations included an overview of regulated drains by Kent Ward, Hamilton County Surveyor; log jams and permitting issues by George Bowman, IDNR Division of Water and Brad Baldwin, IDEM; funding opportunities through USDA by Henry Wallis, NRCS, District Conservationist, Boone and Marion Counties; and 2-stage ditch design overview by John South of the Hamilton County SWCD.

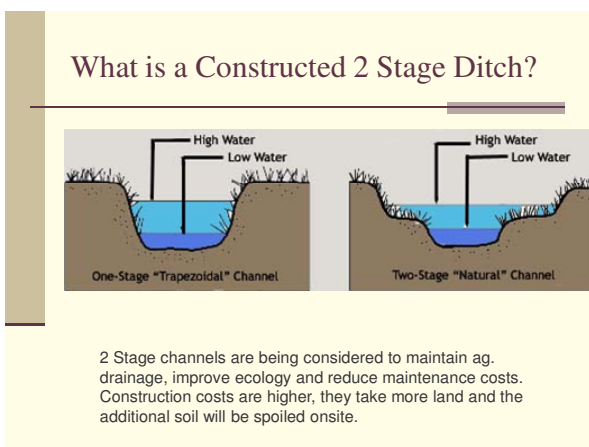


Figure 1-5: Regulated & Non-Regulated Drain Workshop

Website

The Lower Fall Creek Watershed website (**Figure 1-6**) was developed to ensure local stakeholders had up-to-date information regarding the status of the Lower Fall Creek WMP. The website also became a clearinghouse of information related to the Steering Committee, work groups, public meetings, and workshops. Educational materials developed as a part of the project were also made available. The website, www.lowerfallcreek.org was developed and maintained through a Clean Water Indiana grant and hosted by the Hoosier Heartland Resource Conservation & Development (HHRC&D) Council.

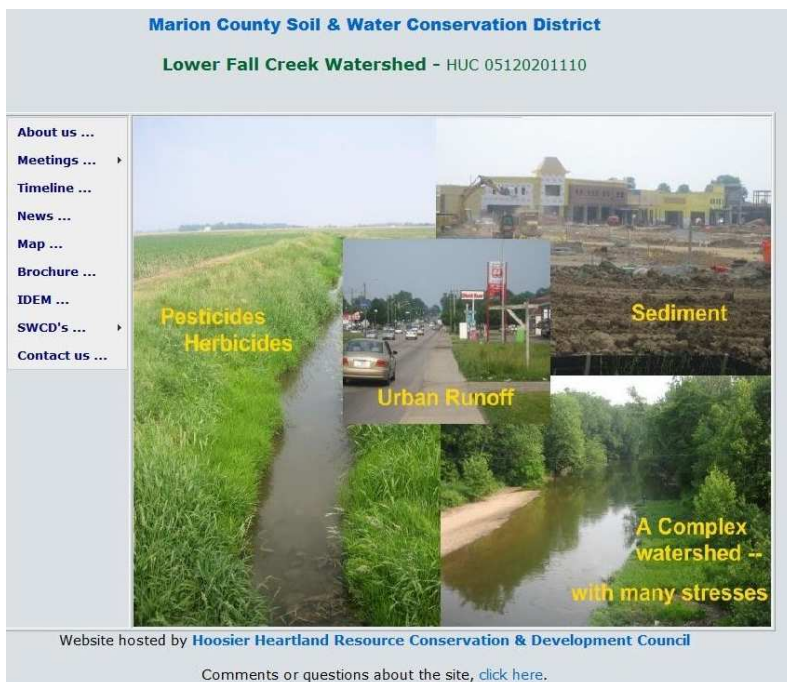
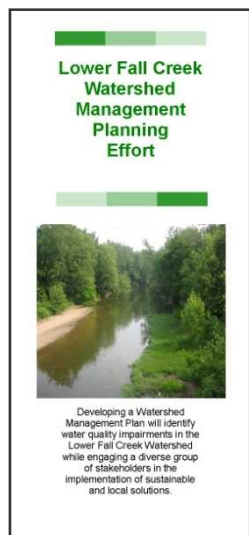


Figure 1-6: Lower Fall Creek Website



**Figure 1-7:
Lower Fall
Creek
Brochure**

Brochure and Newsletters

In the summer of 2007, a Lower Fall Creek Watershed brochure was developed. The brochure included a map of the Lower Fall Creek Watershed, water quality information, facts and statistics regarding the land use. The brochure was distributed to stakeholders throughout the planning process via direct mailings to Neighborhood Associations in the Lower Fall Creek Watershed, Steering Committee meetings, work group meetings, public meetings, workshops, and other local events. A copy of the brochure is included in Appendix 3.

Three Lower Fall Creek Watershed Newsletters were developed and distributed to watershed stakeholders as part of the SWCD Newsletters. The Lower Fall Creek Newsletter kept stakeholders abreast of upcoming meeting dates and announced various project milestones and successes. Copies of newsletters are also available in Appendix 3 of this plan.

Social Indicators Survey

In the fall of 2008, the Lower Fall Creek Watershed participated in a US EPA Region 5 pilot program designed to evaluate the use of social indicators in non-point source pollution management. According to the Draft Social Indicators for NPS Management Handbook 2.0, Social Indicators are measures that describe the capacity, skills, awareness, knowledge, values, beliefs, and behaviors of individuals, households, organizations, and communities.

Dr. Linda Prokopy from Purdue University guided the Education & Outreach Work Group through the important process of developing a Social Indicators Survey which asks questions regarding attitudes toward water quality, types and sources of water pollution, the knowledge of practices that can improve water quality, as well as the willingness of the landowner to adopt

those practices. In September 2008, the survey was directly mailed to over 1,000 residences within the Lower Fall Creek Watershed; however, only approximately 700 addresses were valid. Of the nearly 700 valid mailings, the survey achieved a 27% response rate receiving 187 completed surveys. Of the completed surveys, over half of the respondents indicated that they agree that local economic stability depends upon good water quality, that it is their personal responsibility to help protect water quality, and that their actions have a direct impact on water quality. When surveyed about which pollutants were present in the Lower Fall Creek Watershed, the majority of respondents indicated that they “don’t know” how much of a problem pollutants such as sediments, nitrates, phosphorus, and *E. coli* posed.

Due to the lower response rate, Purdue University representatives plan to hold a series of small, neighborhood based focus groups to evaluate residents’ awareness, attitudes, and practices related to water quality, similar to the survey. As of the development of this WMP, only one focus group has been conducted and data from that assessment has not been provided by Purdue University.

Appendix 3 includes a copy of the Social Indicator Survey and a summary of the results as provided by Purdue University. Results of this comprehensive survey will be utilized to develop future education and outreach campaigns in the Lower Fall Creek Watershed and it is intended to repeat this survey as a component of an IDEM Section 319 Implementation Project.

